

U.S. EPA REMOVAL ACTION
AT THE
MAHONINGSIDE POWER PLANT
WARREN, TRUMBULL COUNTY, OHIO
EMERGENCY CONTIGENCY PLAN

US EPA RECORDS CENTER REGION 5



584403

MARCH 1, 2005

Purpose

The U.S. EPA is conducting a funded removal action that has been classified as an imminent and substantial threat under CERCLA. This response action mitigates threats to public health, welfare, and the environment posed by the presence of uncontrolled hazardous substances located at the site. Removal actions include; assessment of two large and one small mixed hazardous waste piles for Poly Chlorinated Biphenyl (PCB) and Asbestos Containing Material (ACM) that were exposed to the elements. on site, securing the site to prevent public access to hazardous substances, stabilization of the hazardous substances located at the site, segregating, loading and proper removal and disposal of all hazardous materials on site. The time frame is to complete the objectives of this project is estimated at 6-8 weeks to complete.

Description of Property

The Mahoningside Power Plant site is located at 650 Summit Street near commercial and residential properties near downtown Warren, Ohio. The geographical coordinates for the site are latitude 41°14'37.5" north and longitude 80°49'42.8" west. The site is located east of North Tod Road, north of Summit Street, south of an east-west trending Conrail rail line and west of the Mahoning River. The remnant basement of the former power plant encompasses most of the eastern side of the site bordering the Mahoning River and a small building is located centrally on the south side of the property. The site generally slopes downhill from west to east towards the river.

Site History

The former Mahoningside Power Plant was constructed in 1904 by Warren Light and Company as a hydroelectric power plant. From about 1950 to 1980 the plant was operated by Ohio Edison as a coal burning power plant. In the 1970's the property was leased to Summit Warren, Inc., who used it as a scrap/salvage business until it was sold again in 1980. In 1999 the property was turned over to the City of Warren. The City discovered PCB contamination and initiated a voluntary clean-up of the site, and subsequently requested U.S. EPA assistance. Site activities since 1999 included

demolition of all but the basement of the Power Plant building and the removal and staging of the building debris and PCB contaminated materials on site.

On January 31, 2005 met with US EPA to discuss the project objectives and to take over the existing US EPA file. START was also tasked to contact EQM and coordinate collection of two soil samples for PCBs and ACM.

On February 1, 2005 START collected three composite samples from the three soil piles (Pile B (small pile) and A & C) to confirm the concentration of PCBs and asbestos in the soil. Two of the soil samples were analyzed for total PCBs by STL's North Canton, Ohio laboratory and the third for Phased Light Microscopy (PLM) analysis by EMSL's laboratory located in Westmont, New Jersey. Results were sent to EQM's Quality Control Manager under their analytical TDD. ACM greater than 1% was identified in all three piles.

On February 21, 2005 mobilization began. OCS Mark Durno, START member Andrew Ravis and several members of EQM were onsite.

Hazard Description

Three waste piles from the former power plant basement are located centrally within the 6.6 acre site. The waste piles are contaminated with varying levels of PCB's and Asbestos. The estimated volume of contaminated soil is approximately 13,000 cubic yards and will be disposed of as non-hazardous special waste and as TSCA waste based on further sampling and analysis of each pile. Prior sampling and analysis for PCB's has been performed and indicated the presence of PCBs in piles A and C at levels greater than 50 parts per million. Chrysotile ACM has been identified at 1% or greater in all three piles.

Secured Material

The U.S. EPA has currently secured the site and all hazardous materials are within the site boundaries. All wastes are contained within the site boundaries and access to the property is limited by a 6' chain link fence and a locked gate on the west side of the property. . Site access is secured by locking the drive gate after site activities have been completed for the day.

MSDS

PCB and ACM MSDS information is available through START at the site trailer AND AS PART OF **Appendix A** of this plan.

Emergency Contact Numbers

Trumbull Memorial Hospital

(330) 841-9011

1350 E. Market Street

(see attached directions)

Mark Durno, OSC, U.S. EPA Region 5
25089 Center Ridge Road
Westlake, OH 44145

Office	(440) 250-1743
Cellular	(440) 476-7988
Site	(330) 394-6911
Site Fax	(330) 394-6916

Jason El-Zein, Section Chief, U.S. EPA Region 5

Office	(734) 692-7661
Cellular	(734) 612-5804

Region 5 (24-hour) Emergency Response # (312) 353-2318

National Response Center (800) 424-8802

U.S. EPA Contractor – Environmental Quality Management, Inc
1800 Carillon Blvd
Cincinnati, OH 45240

Director of Quality- Jackie Doan (513) 825-7500

EQM Response Manager – Steve Letany

Cellular	(513) 543-3909
Office	(313) 394-6913

U.S. EPA Contractor – Weston Solutions, Inc.

Cleveland Office	(440) 239-1978
Corporate Office	(610) 701- 3000

START Project Lead – Andy Ravis

Cellular	(440) 225-5985
Office	(440) 239-1978 ext. 102
Site	(330) 394-6911

Contingency Plan

This contingency plan has been prepared for distribution to all local responders likely to be involved in a response to an emergency event at the Mahoningside Power Plant site during the U.S. EPA clean-up activities. The following protocols provide necessary guidance for potential response events.

- Unauthorized Entry
- Medical Emergencies
- Fire/Explosion
- Chemical Emergencies

Unauthorized Entry

Any and all acts of unauthorized access or vandalism to the site will be immediately reported to the **Warren Police Department** (Chief John Mandpoulos) by calling 911 or 847-2536. The U.S. EPA and its contractors will also be notified once public safety and law enforcement personnel have been advised. Law enforcement personnel will attempt to communicate with offenders from outside the exclusion zone via loudspeakers and should apprehend them following their exit from the site. As necessary, on-site decontamination procedures will be adhered to before removing the suspect to a holding facility. All personal protection equipment (PPE) needed to enter the facility will be provided on-site to law enforcement officials as needed.

Medical Emergencies

In the event of an on-site injury requiring immediate medical attention, Emergency Medical Services will be activated by calling 911 or **Trumbull Memorial Hospital** at (330) 841-9011. Rescue operations, if necessary within the exclusion zone, should be conducted by on-site personnel wearing the equivalent level of protection or higher level of protection than the alleged victim dependent on the emergency. When the injury is not life threatening, the victim is to be moved to the decontamination zone and decontaminated to the maximum extent possible. Personal protective equipment (PPE) will then be removed, if the victim cannot be moved (back or neck injury) it will be necessary for EMS personnel to enter the exclusion zone to administer treatment. If decontamination of the victim cannot be completed, the hospital emergency room staff should be alerted of the potential for contamination of the victim en-route. Potentially contaminated clothing can later be returned to the site and/or properly disposed of. The access points to the site will be designated and PPE will be available at the support zone/command post for EMS personnel entering the exclusion zone. For emergencies requiring transport to a hospital, the victim should be transported to the Trumbull Memorial Hospital located at **1350 E. Market Street**, Warren, Ohio. A map with local directions to the Hospital from the Mahoningside site is attached as **Appendix B**.

Fire/Explosion

Any incident or indication of fire will be immediately reported to the City of **Warren Fire Department** (Chief Ken Nussle) by calling 911 or (330) 841-2547. Every attempt should be made by the Fire Department to control the fire from the perimeter of the site and to contain the runoff. All personnel upon exiting the exclusion zone from the site must follow proper decontamination procedures.

Due to the nature of the chemicals within the building, hazardous vapors or fumes may be present within the smoke. Consult the attached MSDS for additional information.

In the event of heavy smoke, an evacuation of the local community will be necessary. The decision to evacuate will be made by the Warren Fire Department. The U.S. EPA will assist the fire department with air monitoring and technical assistance, as requested by the Incident Commander.

Other Emergencies

In any event of an on-site emergency during operational hours, it may be necessary for the on-site personnel to evacuate the site. Evacuation notification will be one long horn blast on an air horn, vehicle horn or by verbal communication. On-site personnel will be decontaminated to the maximum extent practical. The hot zone log will be collected by the ERRS Response Manager and the site entry/exit log will be collected by the OSC.

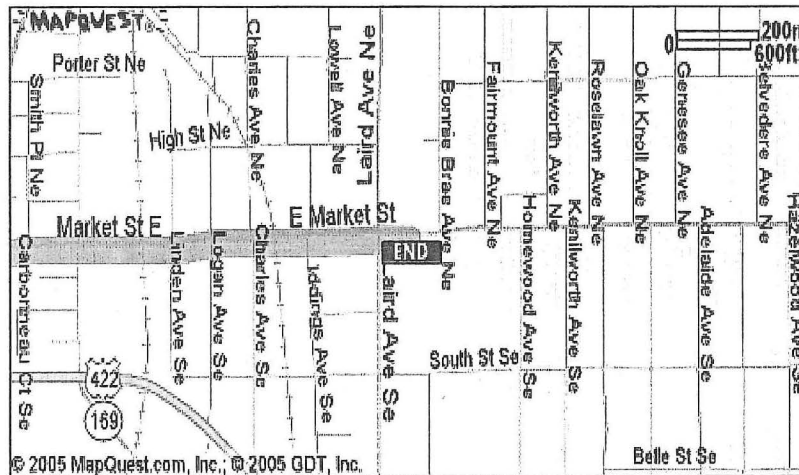
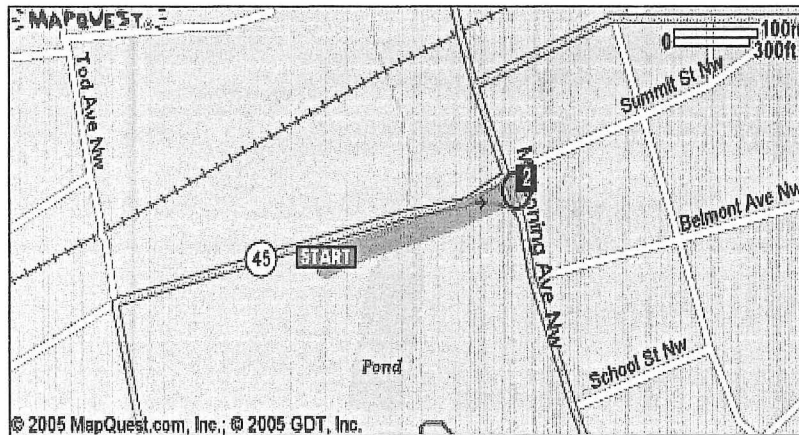
The designated off-site meeting place for the Mahoningside Power Plant site will be designated in the parking lot of the Summit Street Bar on the west end of the property on the corner of North Tod and Summit. In the event this location becomes unsafe because it is too close, all accounted personnel should regroup upwind to safe proximity location and then contact the OSC. The OSC will conduct a head count to ensure that all on-site personnel are accounted for and will contact 911 to advise them of the emergency.

**MAHONINGSIDE POWER PLANT
WARREN, TRUMBULL COUNTY, OHIO**

APPENDIX B

MAP & DIRECTIONS TO TRUMBULL MEMORIAL HOSPITAL

Trumbull Memorial Hospital
1350 E. Market St
Warren OH 44483
(330)-841-9011



- **Start out going EAST on SUMMIT (0.1 miles)**
- **RIGHT onto MAHONING AVE (0.6 miles)**
- **LEFT onto MARKET ST (1.0 miles)**
- **END at 1350 E. MARKET ST**
- Estimated Distance: 1-2 miles
- Estimated Travel Time: 5-7 minutes

**MAHONINGSIDE POWER PLANT
WARREN, TRUMBULL COUNTY, OHIO**

APPENDIX A

MATERIAL SAFETY DATA SHEETS (MSDS)

NIOSH Pocket Guide to Chemical Hazards

Asbestos		CAS 1332-21-4	
Hydrated mineral silicates		RTECS C16475000	
Synonyms & Trade Names Actinolite, Actinolite asbestos, Amosite (cummingtonite-grunerite), Anthophyllite, Anthophyllite asbestos, Chrysotile, Crocidolite (Riebeckite), Tremolite, Tremolite asbestos		DOT ID & Guide 2212 171 (blue, brown) 2590 171 (white)	
Exposure Limits	NIOSH REL: Ca See Appendix A See Appendix C		
	OSHA PEL: [1910.1001] [1910.1101] See Appendix C		
IDLH Ca [N.D.] See: IDLH INDEX		Conversion	
Physical Description White or greenish (chrysotile), blue (crocidolite), or gray-green (amosite) fibrous, odorless solids.			
MW: Varies	BP: Decomposes	MLT: 1112°F (Decomposes)	Sol: Insoluble
VP: 0 mmHg (approx)	IP: NA		Sp.Gr: ?
Fl.P: NA	UEL: NA	LEL: NA	
Noncombustible Solids			
Incompatibilities & Reactivities None reported			
Measurement Methods NIOSH 7400, 7402; OSHA ID160, ID191 See: NMAM or OSHA Methods			
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: Daily Remove: No recommendation Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Breathing: Fresh air	
Important additional information about respirator selection Respirator Recommendations NIOSH At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus			
Exposure Routes inhalation, ingestion, skin and/or eye contact			
Symptoms Asbestosis (chronic exposure): dyspnea (breathing difficulty), interstitial fibrosis, restricted pulmonary function, finger clubbing; irritation eyes; [potential occupational carcinogen]			
Target Organs respiratory system, eyes			
Cancer Site [lung cancer]			
See also: INTRODUCTION See MEDICAL TESTS: 0019			

NIOSH Pocket Guide to Chemical Hazards

Chlorodiphenyl (54% chlorine)		CAS 11097-89-1
C₆H₃Cl₂C₆H₂Cl₃ (approx)		RTECS <u>TQ1360000</u>
Synonyms & Trade Names Aroclor® 1254, PCB, Polychlorinated biphenyl		DOT ID & Guide 2315 <u>171</u>
Exposure Limits	NIOSH REL*: Ca TWA 0.001 mg/m ³ See Appendix A [*Note: The REL also applies to other PCBs.]	
	OSHA PEL: TWA 0.5 mg/m ³ [skin]	
IDLH Ca [5 mg/m ³] See: IDLH INDEX		Conversion
Physical Description Colorless to pale-yellow, viscous liquid or solid (below 50°F) with a mild, hydrocarbon odor.		
MW: 326 (approx)	BP: 689-734°F	FRZ: 50°F
VP: 0.00006 mmHg	IP: ?	Sp.Gr(77°F): 1.38
Fl.P: NA	UEL: NA	LEL: NA
Nonflammable Liquid, but exposure in a fire results in the formation of a black soot containing PCBs, polychlorinated dibenzofurans, and chlorinated dibenzo-p-dioxins.		
Incompatibilities & Reactivities Strong oxidizers		
Measurement Methods NIOSH 5503; OSHA PV2088 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet or contaminated Change: Daily Provide: Eyewash, Quick drench		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
Important additional information about respirator selection Respirator Recommendations NIOSH At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister having a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus		
Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact		
Symptoms Irritation eyes, chloracne; liver damage; reproductive effects; [potential occupational carcinogen]		
Target Organs Skin, eyes, liver, reproductive system		
Cancer Site [in animals: tumors of the pituitary gland & liver, leukemia]		
See also: INTRODUCTION See ICSC CARD: 0939 See MEDICAL TESTS: 0176		

NIOSH Pocket Guide to Chemical Hazards

Barium chloride (as Ba)			CAS 10361-37-2
BaCl ₂			RTECS CQ8750000
Synonyms & Trade Names Barium dichloride			DOT ID & Guide 1564 154 (barium compounds, n.o.s.)
Exposure Limits	NIOSH REL*: TWA 0.5 mg/m ³ [*Note: The REL also applies to other soluble barium compounds (as Ba) except Barium sulfate.]		
	OSHA PEL*: TWA 0.5 mg/m ³ [*Note: The PEL also applies to other soluble barium compounds (as Ba) except Barium sulfate.]		
IDLH 50 mg/m ³ (as Ba) See: IDLH INDEX		Conversion	
Physical Description White, odorless solid.			
MW: 208.2	BP: 2840°F	MLT: 1765°F	Sol: 38%
VP: Low	IP: ?		Sp.Gr: 3.86
F.L.P: NA	UEL: NA	LEL: NA	
Noncombustible Solid			
Incompatibilities & Reactivities Acids, oxidizers			
Measurement Methods NIOSH 7056; OSHA ID121 See: NMAM or OSHA Methods			
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet or contaminated Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately	
Important additional information about respirator selection Respirator Recommendations NIOSH/OSHA Up to 5 mg/m ³ : (APF = 10) Any dust and mist respirator except single-use and quarter-mask respirators/(APF = 10) Any supplied-air respirator Up to 12.5 mg/m ³ : (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with a dust and mist filter Up to 25 mg/m ³ : (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece Up to 50 mg/m ³ : (APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus			
Exposure Routes inhalation, ingestion, skin and/or eye contact			
Symptoms Irritation eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse, extrasystoles; hypokalemia			

Target Organs Eyes, skin, respiratory system, heart, central nervous system

See also: [INTRODUCTION](#) See ICSC CARD: 0614 See MEDICAL TESTS: 0021

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NIOSH Pocket Guide to Chemical Hazards

Lead		CAS 7439-92-1
Pb		RTECS OF7525000
Synonyms & Trade Names Lead metal, Plumbum		DOT ID & Guide
Exposure Limits	NIOSH REL*: TWA 0.050 mg/m ³ See Appendix C [*Note: The REL also applies to other lead compounds (as Pb) – see Appendix C.]	
	OSHA PEL*: [1910.1025] TWA 0.050 mg/m ³ See Appendix C [*Note: The PEL also applies to other lead compounds (as Pb) – see Appendix C.]	
IDLH 100 mg/m ³ (as Pb) See: 7439921		Conversion
Physical Description A heavy, ductile, soft, gray solid.		
MW: 207.2	BP: 3184°F	MLT: 621°F
VP: 0 mmHg (approx)	IP: NA	Sp.Gr: 11.34
FLP: NA	UEL: NA	LEL: NA
Noncombustible Solid in bulk form.		
Incompatibilities & Reactivities Strong oxidizers, hydrogen peroxide, acids		
Measurement Methods NIOSH 7082, 7105, 7300, 7700, 7701, 7702, 9100, 9105; OSHA ID121, ID125G, ID206 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: Daily Remove: When wet or contaminated Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
Important additional information about respirator selection Respirator Recommendations NIOSH/OSHA Up to 0.5 mg/m ³ : (APF = 10) Any air-purifying respirator with a high-efficiency particulate filter/(APF = 10) Any supplied-air respirator Up to 1.25 mg/m ³ : (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter Up to 2.5 mg/m ³ : (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece Up to 50 mg/m ³ : (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode Up to 100 mg/m ³ : (APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus		
Exposure Routes inhalation, ingestion, skin and/or eye contact		
Symptoms Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation		

eyes; hypotension

Target Organs Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

See also: [INTRODUCTION](#) See ICSC CARD: 0052 See MEDICAL TESTS: 0127

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NIOSH Pocket Guide to Chemical Hazards

Mercury compounds [except (organo) alkyls] (as Hg)		CAS 7439-97-6 (metal)
Hg (metal)		RTECS OV4550000 (metal)
Synonyms & Trade Names Mercury metal: Colloidal mercury, Metallic mercury, Quicksilver Synonyms of "other" Hg compounds vary depending upon the specific compound.		DOT ID & Guide 2809 172 (metal)
Exposure Limits	NIOSH REL: Hg Vapor: TWA 0.05 mg/m ³ [skin] Other: C 0.1 mg/m ³ [skin]	
	OSHA PEL†: C 0.1 mg/m ³	
IDLH 10 mg/m ³ (as Hg) See: 7439976		Conversion
Physical Description Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.]		
MW: 200.6	BP: 674°F	FRZ: -38°F
VP: 0.0012 mmHg	IP: ?	Sol: Insoluble
Fl.P: NA	UEL: NA	Sp.Gr: 13.6 (metal)
LEL: NA		
Metal: Noncombustible Liquid		
Incompatibilities & Reactivities Acetylene, ammonia, chlorine dioxide, azides, calcium (amalgam formation), sodium carbide, lithium, rubidium, copper		
Measurement Methods NIOSH 6009; OSHA ID140 See: NMAM or OSHA Methods		
Personal Protection & Sanitation Skin: Prevent skin contact Eyes: No recommendation Wash skin: When contaminated Remove: When wet or contaminated Change: Daily		First Aid (See procedures) Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
Important additional information about respirator selection Respirator Recommendations Mercury vapor: NIOSH Up to 0.5 mg/m ³ : (APF = 10) Any chemical cartridge respirator with cartridge(s) providing protection against the compound of concern†/(APF = 10) Any supplied-air respirator Up to 1.25 mg/m ³ : (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern†(canister) Up to 2.5 mg/m ³ : (APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern†/(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern†/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/PAPRTS(canister)/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece Up to 10 mg/m ³ : (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus		

Other mercury compounds:**NIOSH/OSHA**

Up to 1 mg/m³: (APF = 10) Any chemical cartridge respirator with cartridge(s) providing protection against the compound of concern†/(APF = 10) Any supplied-air respirator

Up to 2.5 mg/m³: (APF = 25) Any supplied-air respirator operated in a continuous-flow mode/(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern†(canister)

Up to 5 mg/m³: (APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern†/(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern†/(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode/PAPRTS(canister)/(APF = 50) Any self-contained breathing apparatus with a full facepiece/(APF = 50) Any supplied-air respirator with a full facepiece

Up to 10 mg/m³: (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode
Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape: (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern/Any appropriate escape-type, self-contained breathing apparatus

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria

Target Organs Eyes, skin, respiratory system, central nervous system, kidneys

See also: INTRODUCTION See ICSC CARD: 0056 See MEDICAL TESTS: 0136